



pyridoxalp nitrate rp reduction glyceraldehydep glutamine assimilatory ammonia

pyruvate => acetyl-CoA

acetyltransferaseacetate acetylcitrulline acetoacetate acetate
archaea catecholamine betacyanin aspartate amaranthin agmatine adrenaline acylglycerol
dgalactonate cysteine crassulacean cam biotin betaine ascorbate
octanoylacc melatonin leucine insp glucosep fatty eukaryotes
isoprenoid cc bacteria arginine animals acetylcoa plants p
acid pyruvate phosphate nad metabolism lipoic

biotin biosynth

animals amp aminoisobutanoate adenine
campesterolsitosterol biobioh bh betaoxidation betaalanine assimilation arnonbuchanan
elongation dihydrolipoylh dihydrolipoyle dehydrogenase de dap cunit citrate
ectoine cycle chorismate bacteria aspartate ascorbate arogenate acid
pyridoxalp prokaryotes plants pimeloylacc mediated lysine ethylene
gtp phenylalanine tyrosine thf tetrahydrofolate pyrimidine

cycle chondroitin cholesterol cholatechenodeoxycholate bile b acid
malonylcoa insp inositol hydroxypropionatehydroxybutylate farnesylpp dermatan dehydrogenase
sulfate fumagillin aflatoxin ubiquinone succinate phytate phosphate metabolism

pectin degradation

bacteria archaea aminotransferase acetyldap acetylcoasuccinylcoa acetate
dissimilatory dihydrotestosterone dap cycle steroid core coenzyme coa cdicarboxylic
hormone glyceratep glutarate gluconate epihydroxymugineic enzyme entnerdoudoroff
methane metabolism mannose malic m lysine keratan inositol hydroxypropanoate hs
lysine sulfate aspartate acid type melatonin insp catechol

biou bioi bicycle bacteria animals acid acetylcoa acetoacetylcoa
ga fumarate ethylmalonyl dicarboxylatehydroxybutyrate dglucose cmpkdo chorismate c biow
isoprenoid indoleglycerol hydroxypropionate heparan glycine gibberellin ggpp geranylgeranylpp
cycle betaine methylaspartate methionine metabolism longchainacylacc llysine jasmonic
biotin lysine trehalose paspaline nicotinate monolignol cysteine

dehydrogenase complex
ubiquinone proteinflavoprotein oligosaccharyltransferase nglycosylation nadh mitochondria fes

formaldehyde ethanolamine core aminomuconate
ornithine oligosaccharide nitrate monophosphate metabolism kynurenine gpianchor glyceratep
tryptophan serine pe assimilation arginine xylulose phosphatidylethanolamine

cofactor acid
histidine heme glycolysis glycine glutathione glucosep fatty cysteine
oxobutanoate nglycan nad molybdenum methionine isoprenoid
eukaryotes chorismate pyruvate precursor phase pc oxoglutarate
ribonucleotide pe ornithine lysine isoleucine imp glycogen
pantothenate glutamate glucose tryptophan
proline p tyrosine prpp phosphate pentose

thiamine biosynthesis

alphanadglucosep air acetylcoa
choline odicarboxylic carboxykinase calvin c betaoxidation assimilation archaea
dgalacturonate cholesterol carbon bacteria aspartate acid coa chorismate
oxaloacetate methionine homoserine gtp glutamyltrna galactose gaba
thiamine siroheme plants phenylalanine pc oxoglutarate oxidation
cycle heme fungi citrate type tmptthiaminetpp threonine